Commentary

CHALLENGES OF RESIDENCY TRAINING AND EARLY CAREER DOCTORS IN NIGERIA STUDY (CHARTING STUDY): A PROTOCOL PAPER

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ABSTRACT

INTRODUCTION: Early career doctors (ECDs) make up a significant proportion of the workforce of medical/dental practitioners in Nigeria. ECDs play pivotal roles in the Nigerian healthcare system. However, several factors affect ECDs in their career endeavours, ranging from poor remuneration to psychosocial problems (such as burn out, job dissatisfaction, etc.). While other countries have tried to investigate these factors and their impact, no national inquiry has been done yet in Nigeria. This demonstrates the critical need to conduct a nationally representative study exploring these factors, such as demographic, workplace and psychosocial factors, among ECDs in Nigeria. This article is a protocol paper for the challenges of residency training and early career doctors in Nigeria study; charting study to be conducted under the auspices of the Nigerian Association of Resident Doctors of Nigeria(NARD).

METHODS: The Charting Study would be a mixed study design, utilizing both qualitative and quantitative study designs and access data from structured questionnaire, focus group interview and secondary data available to the association.

CONCLUSION: The outcome of this study will provide great insight into various issues affecting ECDs in Nigeria and make necessary recommendations.

KEYWORDS: Nigeria, early career doctors, junior doctors, physicians, dentists, workplace, psychosocial issues

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INTRODUCTION

Early Career Doctors (ECDs) are qualified medical practitioners who have finished first degree training and at least have certification to practice clinically and they include pre-registration house officers, medical/dental officers below the rank of a principal medical/dental officer (PMO/PDO) and resident doctors.[1-3]

Early career doctors are similar to junior doctors in the United Kingdom, although the former include those in non-training positions such as medical or dental officers who render more of services while resident doctors and medical or dental interns render services simultaneously

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with training. All ECDs are members of the National Association of Resident Doctors of Nigeria.
In Nigeria, ECDs constitute a significant proportion of the doctors' workforce and play a pivotal role in health service delivery.

Many factors affect the health workforce population, ECDs inclusive, some of which include demographic issues, workplace issues and psychosocial issues.[6-8] Specific issues include migration, misdistribution, poor remuneration, inter-professional rivalry and burnouts. A careful analysis of these problems would serve to reduce the poor indices and outcomes of healthcare problems affecting a low and medium-income country(LMIC) like Nigeria.[9]
Even though the population of ECDs appears to be well investigated in other parts of the world, especially in the developed parts of the world, vis-a-vis their work, workplace, perception to practice, perception of profession and other psychosocial issues affecting them, yet similar thing can not be said of Nigeria.[10] Similarly, most of such studies done in Nigeria are single centre or at best regional in nature, and comprehensive investigation into these critical themes are non-existent.

The CHARTING study is the largest, multi-centre and multidisciplinary research on ECDs in Nigeria, driven by members under the aegis of the Research Collaboration Network (RCN), a sub-structure of Research & Statistics Committee (RSC). The RSC is an adhoc committee established in 2018 by the National Association of Resident Doctors of Nigeria (NARD).[2]
The study is a mixed study design aimed to examine the demographic issues (migration; and distribution of ECDs across the country), workplace issues (practice satisfaction/ dissatisfaction, training and skills acquisition, conflict and conflict resolution and leadership issues) and psychosocial issues (burnout issues)., This article is a report of methodology for the study which would promote openness of our methods and allow the methods to be citable and reduce unnecessary repetition as further articles are being produced from this study.

JUSTIFICATION OF STUDY

There is a great deal of interest in ECDs because they constitute the next generation of leaders and trainers in the health sector, and should thus be the target of specific governmental budgetary allocations and policies to enhance their capacities and competencies.[4]
Furthermore, this career stage is fraught with many challenges and issues, as a result of the transition from undergraduate medical/dental students to postgraduate stage as doctors, often in a milieu of challenging work space.[4] Often times, ECDs do experience difficulties in navigating this stage.

Most of the attempts at some themes that concern ECDs in Nigeria at present are single-centre studies, or single-specialty studies assessing homogenous populations. Previous similar enquiries in developed countries have led to the initiation of new policies and dramatic changes of older policies.[5] Hence, a study of this nature is necessary to guide and stimulate novel policy directions in Nigeria.

RESEARCH METHODOLOGY

Methods/Design

The study is a mixed study design with quantitative and qualitative aspect. It will use structured questionnaires, focus group discussions and secondary administrative data. The use of these methods is aimed at enriching the output of this study.

Study Population

The study population includes ECDs who have finished first degree in Medicine or Dentistry/Dental Surgery who are: undergoing housemanship, residency training, or below the rank of a principal medical/ Dental Officer (PMO/PDO)/Consultant.

Study Site

This study will be carried out in 21 selected teaching hospitals, spreading across the six geopolitical zones in Nigeria. These 21 hospitals will be selected from the 74 Nigerian hospitals having ECDs as staff and NARD branch in their premises.

Every state in the country has at least one healthcare facility where resident doctors are being trained and other ECDs are working. These 74 hospitals (or centres) include federal teaching hospitals, state teaching hospitals as well as federal medical centres situated within the six

geopolitical zones in the country and they are distributed geographically as follows: 10 centres in the North-East Nigeria, 13 centers in the North-Central Nigeria, 14 centers in the North-West Nigeria, 15 centres in the South-West Nigeria, 10 centers in the South-East Nigeria, and 12 centers in the South-South Nigeria.

Sampling Method

A multi-stage sampling technique shall be used for the cross-sectional survey. The levels of sampling include:

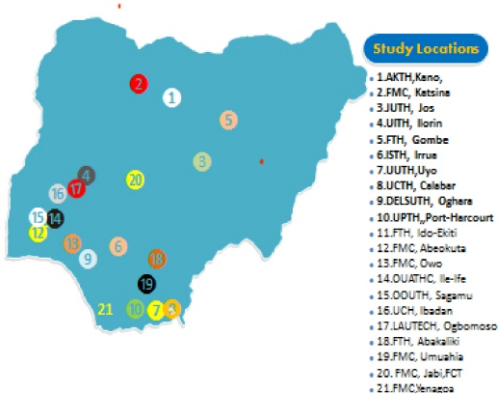
i. 21 centres would be selected among the 74 centres that have ECDs in Nigeria;
ii. 5-10 departments would be randomly selected in each of the selected centres in such a manner that would accommodate the study sample;
iii. There will be total sampling of each willing and qualified participant from each of the selected departments.

The recruitment of the centres would be done to include the following geopolitical zones: North-West (2 centres), North-Central (2centres), North-East (1 centre), South-South (6 Centres), South-West (7centres), South-East(2centres) and the Federal Capital Territory (1 centre). (See Table I & Figure 1). The reponse rate of all the centre would be noted.

Table 1: Location of ECDs centres that would be involved in the study

1. North-West geopolitical zone
a. Aminu Kano Teaching Hospital (AKTH), Kano, Kano State
b. Federal Medical Centre(FMC), Katsina, Katsina State
2. North-Central geopolitical zone
a. Jos University Teaching Hospital(JUTH), Jos, Plateau State
b. University of Ilorin Teaching Hospital(UITH), Ilorin, Kwara State
3. North-East geopolitical zone
a. Federal Teaching Hospital(FTH), Gombe, Gombe State
4. South-South geopolitical zone
a. Irrua Specialist Teaching Hospital(ISTH), Irrua, Edo State
b. University of Uyo Teaching Hospital(UUTH), Uyo, Akwa Ibom
c. University of Calabar Teaching Hospital(UCTH), Calabar, Cross River State
d. Delta State University Teaching Hospital(DELSUTH), Oghara, Delta State
e. University of Port-Harcourt Teaching Hospital(UPTH), Port-Harcourt, Rivers State
f. Federal Medical Centre(FMC), Yenagoa, Balyesa State
5. South-West geopolitical zone
a. Federal Teaching Hospital(FTH), Ido-Ekiti, Ekiti State
b. Federal Medical Centre(FMC), Abeokuta, Ogun state
c. Federal Medical Centre(FMC), Owo, Ondo State
d. Obafemi Awolowo University Teaching Hospital(OAUTH), Ile-Ife, Osun State
e. Olabisi Onabanjo University Teaching Hospital(OOUTH), Sagamu, Ogun State
f. University College Hospital(UCH), Ibadan, Oyo State
g. LAUTECH Teaching Hospital, Ogbomosho,Oyo State
6. South-East geopolitical zone
a. Federal Teaching Hospital(FTH), Abakaliki, Ebonyi State
b. Federal Medical Centre(FMC), Umuahia, Abia State
7. Federal Capital Territory (FCT), Abuja
a. Federal Medical Centre(FMC), Jabi, FCT

Figure 1: Study Location



Sample size

A total of 1,554 ECDs would be surveyed across the country. This was based on expected frequency of 50% to accommodate the broad and non availability in some instance, prevalence rate of the various issues to be explored. Confidence limit of 5% was used and the design effect was set at 4.0 based on the 21 clusters we intend to use. The sample size calculation was done using StatCalc of Epi Info 7™ produced by Centre for Disease Control and Prevention.

Inclusion & Exclusion Criteria

The inclusion criteria for participants' selection include (1) ECDs in Nigerian teaching hospital and training centres, and (2) ECDs that give consent to participate in the study (3) ECDs must be in a NARD centre

The exclusion criteria for participants' selection would be (1) non- ECDs in the Nigeria teaching hospitals and training centres; and (2) non-consenting ECDs(3) ECDs not in a NARD centre

Data Collection Procedure

Study data will be collected using the following collection procedures:

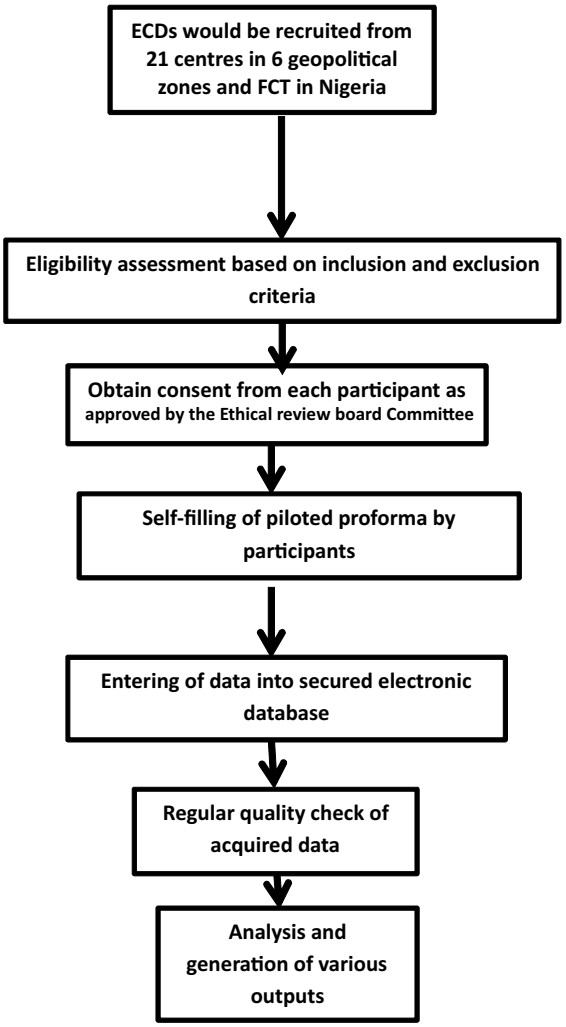
1. Administrative data to determine the numerical strength, distribution, and profile of the members of the NARD in each local branch of the NARD's administrative structure will be collected.
2. Individual level data from the 1,554 eligible participants that will be recruited for the study through multistage sampling shall be collected via structured reporting proforma. The questionnaire would be used to collect data on their socio-demographic characteristics, and the relevant subthemes that this study aims to explore. (See table 2 & Figure 1&2)

3. Data will be collected from other stakeholders such as the Medical and Dental Council of Nigeria (MDCN) to explore issues such as migration of ECDs, the supply rate, and the volume of ECDs.
4. Focus group discussion for qualitative data from key members, such as branch presidents and general secretaries, to explore issues on the "leadership", "conflicts at work", and "migration" themes, amongst others.

Table2. Proforma section, synopsis of variables that would be assessed and tools to be used

Section	Relevant variables to be explored/Assessment tool
A. Socio-demographic variables	Age, gender, marital status, tribe, training centre, department at work place, cadre, years on present cadre, specialty, medical school, number of year s of graduation from medical school, years of practice, years on current job, additional qualification, number of children, number of spouse, number of dependent(s), current income
B. Assessment of Resident call duty hours	Average duration of work, average work ing hours , call duty schedule, hours spent on research, hours spent on private study, average duration of sleep
C. Attitude, gap, and challenges in respect to research	Previous research experience (undergraduate & postgraduate), previous research output, perception and attitude to research, barriers to research disposition
D. Quality of life	Validated World Health Organisation (WHO) Quality of Life-BREF (WHOQOL-BREF) questionnaire[11,12]
E. Assessment of psychological well-being	Validated General Health Questionnaire[13,14]
F. Assessment of Burnout syndrome	Validated Maslach Burnout Inventory (MBI).[15]
G. Assessment of dissatisfaction/satisfac tion	Likert scale of 48 items to assess dissatisfaction/satisfaction
H. Assessment of confl ict and conflict resolution	Conflict- Rahim Organizational conflict inventory II and Conflict resolution- conflict resolution questionnaire [16,17]
I. Assessment of migration	Intention to migrate, desire to migrate, post migration intentions, drivers of migration
J. Assessment of leadership and associated challenges	Attitudes toward leadership position, leadership experience, view on how to improve leadership experience
K. Assessment of Training experience	Peer training program(PTP) involvement, PTP involvement, method of training at training centre

Figure 2: Flow chart of methodology



Data Analysis

A. Quantitative data

Collected data will be cleaned, coded, and entered into the Statistical Package for Social Sciences (SPSS) version 23 Software. The frequency distribution of all variables will be determined. Test of association between/among qualitative variables will be done using bivariate and multivariate analyses, with level of statistical significance set at a p-value <0.05.

B. Qualitative data

Recorded interviews will be transcribed by two expert translators and the generated textual data will be analysed using thematic approach. Themes and subthemes will be generated and supported with illustrative quotations from the interviews.

Ethics approval and consent to participate

The approval for the study would be sought from the relevant ethical review board. Each participant is required to give informed consent before participating in the study.

DISCUSSION

The CHARTING study would provide comprehensive information on ECDs in Nigeria. It is expected that it would generate a landmark output that would influence the interplay between the ECDs and other relevant and critical stakeholders in Nigeria, and even abroad. It would also help engender evidence-based interaction especially with the government (the greatest employer of ECDs) on key issues as it affects ECDs.

Demographic issues

Globally, there is demographic pressure on the limited workforce in health sector, and Nigeria is equally affected. ECDs are not also left out of this growing dynamism. The demographic pressure is due to undersupply of health personnels, misdistribution, migration of health personnel and attrition from clinical practice with implication on the mental and physical well-being of the practitioners.,

Over the past 50 years, there has been a significant rise in the number of doctors who have migrated among countries, especially from low- and medium-income countries to high-income countries.[21] In the US, the internationally trained physicians account for 27% of all her physicians.[22] There is dearth of data on the exact number of ECDs that outwardly move in Nigeria or its determinants.

It is expected that the drivers of migration among ECDs is different from the generality of medical practitioners due to their peculiarities. The CHARTING study would provide key information on migration, distribution, supply gap and distribution of ECDs across the country.

Workplace issues

Various critical themes at workplace include practice satisfaction/ dissatisfaction, training and skills acquisition, conflict and conflict resolution and leadership issues. The CHARTING study would explore these issues.

1. **Clinical Practice Satisfaction/ Dissatisfaction**
   Clinical practice satisfaction/dissatisfaction which affects the generality of medical practitioners is also expected to affect ECDs. It is a well-known fact that clinical satisfaction or dissatisfaction among doctors has direct relationship with quality of care that patients receive.[23-26]

It would be interesting to know the interplay of this theme (as a driver of migration of practitioners) and how it affects quality of life of practitioners. Furthermore, the possible solution to this rising scourge of doctors' dissatisfaction may be more complicated than envisaged therefore there is need for detailed insight.[24-26]

2.Leadership issues

The daily professional activities of doctors require them to lead multidisciplinary teams of healthcare professionals, and this requires that they exhibit good clinical leadership and management skills.[27]

It is commonplace that leadership and management training is left till the later years of postgraduate medical training, with acquisition of clinical skills being the focus in the early years of training. This approach has been argued by some authors to be less optimal.'27 Functioning effectively as a good doctor goes beyond being a good clinician, but revolves around consistent display of good leadership qualities; like the ability to lead and function in a team, communicate effectively, respect colleagues and other teammates, show responsible behaviour, and be accountable.[27]

A good understanding of policy, change management, business and financial planning has been proposed as useful tools in the diverse roles of a doctor.[27] While the United Kingdom integrates leadership training into the training program of early and young doctors and the Canadian healthcare system integrates medical leadership training in all steps of medical training.[27]

Relevant variables relating to leadership skills would be explored and attempt would be made to identify the challenges of young Nigerian doctors in acquiring and engaging in leadership roles.

3. Conflict and conflict resolution

The Nigerian health sector is plagued with problems which lead to conflicts among her human resources in healthcare.[27] Different cadre of healthcare professionals including doctors' work under stressful conditions predisposes them to conflict which maybe intraprofessional or interprofessional.[28] In a study conducted amongst doctors and nurses in two public hospitals in Ido-Ekiti, Nigeria showed that healthcare workers agree to the existence of conflict at the workplace.[29] The causes of conflict are power tussle and influence, poor interpersonal communication, inadequate opportunities for staff interaction, sexual harassment, stress, personality differences, dysfunctional teams, favoritism, warring egos, heavy workloads, and unclear job descriptions., It is important to maintain a healthy work environment in health system workplace by proper conflict resolution.

4. Training and skills acquisition

One of the core challenges facing the 21st century postgraduate medical and dental education is the training of the next generation of doctors effectively and efficiently. This period of training of ECDs is a time that calls for great commitment of every party involved, with emphasis placed on quality patient care; vis-a-vis acquisition of skills and knowledge required of future leaders of the healthcare team.[31]

Previous studies have explored some trainees' views and noted lack of time/motivation, indifference, poor knowledge of research methods, inadequate training facilities, poor welfare and inadequate sponsorship/ poor remuneration as challenges confronting their training.[27] The CHARTING study would also provide insight into the issue across the country.

5. Research related issues

There are few studies on the interplay of research variables and ECDs, even though residency training is hinged on the tripod of clinical services, health service management research and training.[32] ECDs in training positions, embarking on postgraduate medical training or residency programmes, are expected, during training, to acquire additional skills to contribute to the existing body of knowledge in their fields of interest. This fact thus necessitates incorporating research into their training programme.[33] This aspect of training among ECDs has however been poorly explored.

6. Resident work & call duty scheduling

The death of Libby Zion, an 18-year-old freshman in 1984 at a New York hospital under the care of residents, triggered the resident duty hours reform, with questions being asked on how best to organize the work hours of ECDs undergoing training.

On the global front, the European working time directive was implemented in 1998 with a maximum of 48 working hours per week,34 which the United Kingdom started implementing for doctors in 2004 and currently over 25% European countries have implemented this policy.34 In the United States, the Accreditation Council for Graduate Medical Education has been enforcing limited working hours for residents since 2003 and most recently, in July 2017, residents were limited to a maximum of 80 hours per week with no more than 24 hours shift at a stretch, a 10 hours break after every 24 hours shift and a limit of in-house call once every 3 days.[34-37] In Canada and Australia, there is no national policy yet on the reduction of duty hours but generally eighty hours of work weekly is considered safe.,

In Nigeria, however, there appears to be no targeted policy towards residency training and resident duty hours, and at best what the government has done is to place a maximum limit of 40 call units per month for every doctor. While the above policy remains officially in place; however, in practice, many doctors have had to endure much longer work shifts, based on the need to cover the unit(s)/department(s) round the clock, in the face of a limited workforce. In addition, the distribution of doctors across various specialties has been irregular at best, making some doctors more overworked than others. The CHARTING study is expected to provide insight into how ECDs view their work schedule across the country.

7. Psychosocial issue

Burnout is a syndrome of emotional exhaustion, de-personalisation and lack of personal accomplishments affecting doctors in the care of their patients. Burnout in the workplace results from an abnormal response to prolonged psychological and interpersonal stressors, and can be caused by extremely strong response and unequal relationship between the doctor and his patients or his environment.41 Residency training and clinical practice is reputed for being challenging and demanding, placing the ECDs at risk of burnouts. These have been linked to absenteeism, decreased job satisfaction and medical errors.[42]

Till now, the national prevalence of burnout among ECDs is yet to be determined in Nigeria. However, some Nigerian studies have been carried out on the prevalence and determinants of burnout in Nigeria, but these were conducted among small samples of resident doctors in some selected teaching hospitals in Nigeria, making the statistics nationally under-representing.

CONCLUSION

The CHARTING study is expected to provide great insight in various themes that affects ECDs. These themes are "demographic issues", and "workplace and psychosocial issues".

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REFERENCES

1. Doctors' titles: explained. United Kingdom: British Medical Association:12.
2. Adebayo Oladimeji , Ogunsuji Oluwaseyi , Olaopa Olusegun , et al. Trainees Collaboratively Investigating Early Career Doctors' Themes: A NARD Initiative in Nigeria. Nigerian Journal of Medicine: journal of the NationalAssociation of Resident Doctors of Nigeria 2019;28:93-7.
3. NARD. Initiating Trainee Research Collaboration Network: A NARD Initiative in Nigeria. Abuja: NationalAssociation of Resident Doctors of Nigeria(NARD); 2019.
4. Brennan N, Corrigan O, Allard J, et al. The transition from medical student to junior doctor: today's experiences of Tomorrow's Doctors. Medical education 2010;44:449-58.
5. Miller A, Archer J. Impact of workplace based assessment on doctors' education and performance: a systematicreview. Bmj 2010;341:c5064.
6. Okafor UV. Challenges in critical care services in Sub-Saharan Africa: perspectives from Nigeria. Indian journal ofcritical care medicine : peer-reviewed, official publication of Indian Society of Critical Care Medicine 2009;13:25-7.
7. Ogunsemi O, Alebiosu O, Shorunmu O. A survey of perceived stress, intimidation, harassment and well-being of doctors in a Nigerian teaching hospital. Nigerian journal of clinical practice 2010;13.
8. Akinyemi O, Atilola O. Nigerian resident doctors on strike: insights from and policy implications of job satisfaction among resident doctors in a Nigerian teaching hospital. The International journal of health planningand management 2013;28:e46-e61.
9. Bhangu A, Kolias AG, Pinkney T, Hall NJ, Fitzgerald JE. Surgical research collaboratives in the UK. The Lancet2013;382:1091-2.

10. Lambert TW, Goldacre MJ, Evans J. Views of junior doctors about their work: survey of qualifiers of 1993 and1996 from United Kingdom medical schools. Medical Education 2000;34:348-54.
11. Group W. Development of the WHOQOL: Rationale and current status. International Journal of Mental Health1994;23:24-56.
12. Group W. Development of the World Health Organization WHOQOL-BREF quality of life assessment.Psychological medicine 1998;28:551-8.
13. Jackson C. The General Health Questionnaire. Occupational Medicine 2007;57:79-.
14. Makanjuola VA, Onyeama M, Nuhu FT, Kola L, Gureje O. Validation of short screening tools for common mentaldisorders in Nigerian general practices. General Hospital Psychiatry 2014;36:325-9.
15. Omoluabi P, Coker A. Validation of maslach burnout inventory. IFE PsychologIA: An International Journal 2009;17:231-42.
16. Rahim MA. Managing conflict in organizations: Routledge; 2017.
17. Mwantu EN, Jampak A, Dastu RR, Ibanga M, Shitery IB, Agun LA. Gender, Emotional Intelligence and Conflict Resolution Proficiency of Managers in Nigerian Organizations. KIU Journal of Humanities 2018;2:235-47.
18. Adebayo O, Labiran A, Emerenini CF, Omoruyi L. Health Workforce for 2016-2030: Will Nigeria have enough?International Journal of Innovative Healthcare Research 2016;4:9-16.
19. Scheffler RM, Liu JX, Kinfu Y, Dal Poz MR. Forecasting the global shortage of physicians: an economic-andneeds-based approach. Bulletin of the World Health Organization 2008;86:516-23B.
20. Adebayo O, Omoruyi L, Labiran A, et al. Pattern of spread of medical schools in Nigeria. Developing CountryStudies 2013;3:160-5.
21. Grignon M, Owusu Y, Sweetman A. The international migration of health professionals. International Handbookon the Economics of Migration, Edward Elgar, Cheltenham, UK, and Northampton, USA 2013:75-97.
22. Hagopian A, Thompson MJ, Kaltenbach E, Hart LG. The role of international medical graduates in America'ssmall rural critical access hospitals. The Journal of Rural Health 2004;20:52-8.
23. DeVoe J, Fryer Jr GE, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of familyphysicians to deliver high-quality patient care? Journal of Family practice 2002;51:223-9.
24. Pedrazza M, Berlanda S, Trifiletti E, Bressan F. Exploring physicians' dissatisfaction and work-related stress. Development of the phydis scale. Frontiers in psychology 2016;7:1238.
25. Alon U. How to choose a good scientific problem. Molecular cell 2009;35:726-8.
26. Pathman DE, Konrad TR, Williams ES, Scheckler WE, Linzer M, Douglas J. Physician job satisfaction, dissatisfaction, and turnover. The Journal of familypractice 2002;51:593-.
27. Ojo E, Chirdan O, Ajape A, et al. Post-graduate surgical training in Nigeria: The trainees' perspective. Nigerianmedical journal: journal of the Nigeria Medical Association 2014;55:342.
28. Alshammari HF, Dayrit RDJ. Conflict and Conflict Resolution among the Medical and Nursing Personnel of Selected Hospitals in Hail City.
29. Olajide AT, Asuzu MC, Obembe TA. Doctor-nurse conflict in Nigerian hospitals: Causes and modes of expression.Journal of Advances in Medicine and Medical Research 2015:1-12.
30. Oni-Ojo E, Iyiola O, Osibanjo AO, IGBINOBA EE. Managing Workplace Conflicts in Business Environment: The Role of Alternative Dispute Resolution (ADR). European Journal of Business and Management 2014;6:74-82.
31. Imrie KR, Frank JR, Parshuram CS. Resident duty hours: past, present, and future. BioMed Central; 2014.
32. ARD U. Technical Report:Guidelines on Residency Training Programme University College Hospital, Ibadan.Ibadan2017 31 July 2017.
33. Jeje E, Elebute O, Mofikoya B, Ogunjimi M, Alabi T, Ekekezie O. Research experience of resident doctors who attended research methodology courses of the National Postgraduate Medical College of Nigeria. Nigerian Postgraduate Medical Journal 2017;24:31-6.
34. Temple J. Resident duty hours around the globe: where are we now? BMC Medical Education 2014;14:S8.
35. Khoong EC, Linker AS. An Appeal for Evidence-Based Resident Duty Hours Reform. JAMA internal medicine2017;177:1555-6.
36. Hanna J, Gutteridge D, Kudithipudi V. Finding the elusive balance between reducing fatigue and enhancing education: perspectives from American residents. BMC medical education 2014;14:S11.
37. Schuh L, Khan M, Harle H, et al. Pilot trial of IOM duty hour recommendations in neurology residency programsUnintended consequences. Neurology 2011:WNL. 0b013e31822c61c3.
38. Pattani R, Wu PE, Dhalla IA. Resident duty hours in Canada: past, present and future. Canadian Medical Association Journal 2014;186:761-5.
39. Rotenstein LS, Torre M, Ramos MA, et al. Prevalence of burnout among physicians: a systematic review.JAMA2018;320:1131-50.
40. Ogundipe O, Olagunju A, Lasebikan V, Coker A. Burnout among doctors in residency training in a tertiaryhospital. Asian journal of psychiatry 2014;10:27-32.
41. Leiter MP, Frank E, Matheson TJ. Demands, values, and burnout: relevance for physicians. Canadian FamilyPhysician 2009;55:1224-5. e6.
42. Michie S, Williams S. Reducing work related psychological ill health and sickness absence: a systematic literature review. Occupational and environmental medicine 2003;60:3-9.
43. Issa B, Yussuf A, Olanrewaju G, Oyewole A. Stress in residency training as perceived by resident doctors in a Nigerian university teaching hospital. European Journal of Scientific Research 2009;30:253-9.